

## **SYNCHRONIZATION OF ASYNCHRONOUS NETWORKS USING MEDIA ACCESS CONTROL (MAC) LAYER SYNCHRONIZATION SYMBOLS**

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### **ABSTRACT OF THE DISCLOSURE**

A method and structure for the distribution and utilization of synchronization within an asynchronous network is described herein. Synchronization is distributed through an asynchronous network via a  
10 synchronization symbol periodically inserted on the MAC layer. The priority of this symbol ensures that this symbol is inserted in the MAC layer data stream ahead of all other types of symbols. The insertion of the synchronization symbol in the middle of an ongoing data frame is supported. In addition, a method for synchronization symbol distribution throughout an asynchronous network is  
15 presented, along with a method for switching to a new synchronization path (in the event of loss of original synchronization path) based on minimum number of hops from the synchronization source. In addition, a method is described for utilization of the count and interval of received synchronization symbols and the count and interval of transmitted synchronization symbols to generate an error correction  
20 signal used in the process of frequency locking of a device's internal hardware to received synchronization symbols from another device.

Using the prioritized insertion capability required for synchronization symbols, a variety of other MAC layer control symbols are defined to perform other functions, such as propagation time measurement between adjacent nodes.

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